



U. S. Department of Energy

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## ENVIRONMENT, SAFETY AND HEALTH

### ONSITE TECHNICAL ASSISTANCE

#### ACTIVITY SUMMARY

JANUARY–MARCH 1996

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### ENHANCED WORK PLANNING

Fernald   Mound   Richland   Idaho   Oak Ridge   Savannah River

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#### OHIO (FERNALD)

During the first quarter, mentoring activities for the enhanced work planning initiatives at Fernald have centered around three primary activities. EH Mentors helped to implement formal work control enhancements conceptualized during the first phase of the demonstration project to improve efficiency and productivity within the Fernald Environmental Restoration Management Corporation (Fernald) maintenance groups. EH Mentors also assisted the enhanced work planning team build on the improved work control procedures to advance specific goals of the safety and health organizations. Most importantly, Mentors worked with staff in the Ohio Field Office (OH) to ensure that the enhanced work planning process is permanently incorporated in the organizational culture at Fernald and within all sites under OH.

Since it began in July 1995, the enhanced work planning program at Fernald has become a practical tool for helping the site's maintenance organization shift from dedicated resources to a matrixed organization and implement other strategic integration, continuous improvement, and re-engineering initiatives. Several fundamental tenets have driven the activities to date, among them—

- A multidisciplinary team should review maintenance work packages in parallel (rather than sequentially) to enhance communication and expedite processing.
- Technical experts should identify requirements for each job rather than a planner, who may have limited knowledge of hazards or the various disciplines involved. This will foster a hazard-based, graded approach to planning.
- Clear-cut responsibilities and accountability must be established for technical experts who identify requirements, and all support organizations (e.g., radiological

controls, safety engineering, industrial hygiene) must develop a customer-driven approach to fulfilling their missions.

- Workers should be involved “up front” in planning. Job walkdowns and automation of work package processing are critical to a safe and efficient work control system.
- The use of fair, meaningful accounting systems and performance measures are essential to proper management of the work control system.

A key result from the Fernald Enhanced Work Planning Demonstration Project has been the development and implementation of a new, sitewide work control procedure controlling alteration, fabrication, and corrective maintenance activities. This procedure institutionalizes many of the fundamental enhanced work planning tenets and concepts identified above. To provide assurances that the new procedure complies with appropriate requirements, is being properly followed, and is, in fact, a significant improvement, EH Mentors specializing in maintenance programs recently assisted Fernald in performing a compliance self-assessment. Through a detailed review of the procedure, interviews with various stakeholders, and actual observations of the new process in action, the self-assessment concluded that the new procedure “was a great improvement over previous systems and that there should be considerable improvement in the time it takes to process a work order.” The self-assessment recommended minor procedural changes that are currently being incorporated into a revision that will be issued in the second quarter.

As a result of the enhanced work planning process and implementation of the new maintenance work control procedure, two significant improvements in performance were recorded this quarter. The average time to complete a corrective maintenance work request has been reduced by 86 percent, from 150 to 21 days. This has contributed to a 42 percent reduction in the backlog of maintenance activities (i.e., down to 2,800). The number of work packages reviewed by the safety and health organization has increased by 30 percent (from 70 percent to 100 percent), and the average time required for this review has been reduced from 3 weeks to 5 days.

The enhanced work control process is being automated by using a standard software package tailored to meet the individual site requirements. Work packages will be routed in parallel to reviewers who will electronically attach necessary plans, permits, Material Safety Data Sheets, Job Hazard Analyses, and other information. Features of the software include electronic routing; electronic signature; automatic re-routing of the package to an alternate reviewer or manager (i.e., should delays occur); incorporation of electronic photographs and drawings; full text indexing for automated sorts based on hazards and task type. Fernald estimates that cost avoidance resulting from this \$26,000 investment will exceed \$2 million in 5 years.

Model reports containing all information appropriate for line management, workers, Industrial Hygiene, and the Medical Department are being developed for work packages dealing with asbestos and lead. Existing computerized databases are being

reprogrammed to support preparation of these reports. In addition, safety and health personnel are being cross-trained to represent multiple groups (i.e., safety, industrial hygiene, medical) during review of work packages at the Work Coordination Center. Procedures are being developed to minimize the impact on work caused by minor changes to work packages. Also, numerous standards, performance requirements, permits, and procedures are being revised to make them consistent with the new enhanced work control procedures. Finally, computerized systems elsewhere in the DOE complex focusing on medical, industrial hygiene, and job hazard analysis tasks are being evaluated for possible linkage with the "electronic work package" system being developed at Fernald.

The Core Team reviewed productivity losses and inefficiencies resulting from various delays to work execution (e.g., lost craft time due to waiting for radiation support) to identify potential enhancements. A "delay code" time charge system is being implemented to improve identification of the causes of job delays. By monitoring delay codes, managers will now be better able to understand causes of "bottlenecks" and focus attention accordingly. The Core Team and EH Mentors are training managers, supervisors, and workers in the appropriate use of delay codes to achieve the goal established by the Core Team of reducing hours charged to delay codes by 20 percent per quarter from the 570 hours established as baseline (December 1995 through February 1996).

Time, effort, and money are often wasted when more than one work request is submitted for the same job. To assist building managers in identifying work previously submitted and to help coordinate the various safety and health teams conducting facility inspections at the site, a deficiency tag procedure is being developed. The new procedure will minimize or eliminate preparation of duplicate maintenance work requests.

Efforts have begun to "export" enhancements and the enhanced work planning process in general to other groups at Fernald not involved in the initial Enhanced Work Planning demonstration project. The construction organization (involved with deactivation and decommissioning) and the Vitrification Plant have begun to use enhanced "work coordination center" meetings to help plan work. The enhancement of the work coordination center meeting (focusing on maintenance activities only) was a key accomplishment stemming from 1995 efforts.

EH Mentors have been assisting OH and the Fernald Area Office in establishing the enhanced work planning process as a key mechanism for fostering continuous improvement at Fernald and throughout OH. Specifically, at Fernald, Mentors provided assistance in drafting award fee criteria dealing with the continuation of the enhanced work planning process. Up to 2 percent of Fernald's approximately \$20 million award fee is set aside for accomplishing specific objectives related to enhanced work planning. Similarly, OH has drafted language in its "Strategic Plan for 1996-2000" identifying the enhanced work planning initiative as a significant component of its overall efforts to ensure safety of workers and efficient completion of planned cleanup activities at all OH sites. ♦

## OHIO (MOUND)

Enhanced work planning initiatives within the maintenance organization at Mound have continued to build on the successes achieved during the initial stages of the demonstration project in December 1995. EH Mentors assisted the Mound Work Control Team in implementing an improved work control system and identifying related enhancements. Efforts focused on two areas chosen by the Core Team as providing the greatest payback in increased productivity and improved work control: review of work requests by the Core Team and the process of scheduling work.

EH Mentors began the quarter by supporting EG&G Maintenance Management in selecting work control team members and holding an initial team meeting. Team members analyzed surveys conducted last December by the Maintenance Department to determine the effectiveness of the newly implemented maintenance work control system and identify future improvements to the maintenance service request process. Based on results from the surveys, the team selected and prioritized five major potential enhancement areas for consideration: work order initiation, review of work requests by the building manager and core team, planning, scheduling, and closeout. Subteams were established in the top two priority areas, work request review and scheduling, and each subteam performed reviews of each function to ensure complete understanding of individual process steps. EH Mentors assisted the subteams in developing work-flow diagrams to identify choke-points in the processes. Based on the work of the subteams, the Core Team selected three specific enhancements for development and implementation.

To improve scheduling of work, weekly "pilot" work scheduling meetings were established for work that required support from a radiation control technician. The first two meetings highlighted significant obstacles resulting from assignment of a radiation control technician to nonscheduled work. A scheduling form was developed to simplify the tracking and allocation of resources and to aid in identifying schedule deviations. Preliminary results of the pilot indicate that a significant improvement has been attained in decreasing schedule conflicts. Specifically, the weekly completion percentage of scheduled work has increased from 50 percent to 95 percent of those jobs on the schedule. In addition to providing better use of available resources, the scheduling initiative has enhanced compliance with 10 CFR 835 regulations, which require radiation control technicians to be supervised by trained and qualified supervisors. Pending continued success of the pilot, plans will be developed to expand the concept to include all maintenance activities.

The work request review team initially identified and prioritized 16 potential enhancements. These were reduced to six high-priority issues from which the team selected emergency call-in procedures and maintenance service request deficiencies as their focus.

During both normal work hours and after-hours, emergency call-in work requests were bypassing the building managers. Procedural enhancements were implemented to ensure that building managers are notified of all work in their facilities.

The work request review subteam determined that inadequate information is provided in the initial maintenance service requests such that—by conservative estimate—50 percent of all incoming maintenance service requests required further investigation by the planning organization to identify basic information (i.e., location of the work, funding source, or scope of work to be performed). This item is under review, and several potential improvements are under consideration.

During this first part of the demonstration, a support area outside maintenance has been identified as a candidate that should be included in the enhanced work planning demonstration. One particular area that is involved in a wide range of activities at the Mound site is the DOE-approved Radiation Protection Program required by 10 CFR 835. Review of existing Radiation Protection Program elements that should be integrated with enhanced work planning initiatives has resulted in development of a draft implementation plan to ensure that 10 CFR 835 program elements effectively support enhanced work planning objectives. Two program elements that are required subsets of planning work with radiological hazards are the Radiological Work Permit Program and As Low as Reasonably Achievable (ALARA) reviews. (Refer to “Radiation Protection, Mound,” p. A-12, for background information and details of activities under way in these areas.)

Based on the significant successes achieved in both the Mound and Fernald Enhanced Work Planning Demonstration Projects, the Ohio Field Office has committed to extending the enhanced work planning initiative to all sites and facilities under its purview. Accordingly, the enhanced work planning initiative and its key principles have been endorsed in the OH strategic plan that sets overall direction in implementing cleanup initiatives in the Ohio complex. ♦

## RICHLAND

The Richland Operations Office and Westinghouse Hanford Company initiated the second phase of the Enhanced Work Planning Demonstration Project at the Hanford Site at four participating facilities—PUREX, K Basins, East Tank Farms, and West Tank Farms. Advisory, Core, and Facility Teams were formed, and a kickoff meeting was held in January. EH Mentors are supporting these Enhanced Work Planning Teams in planning and conduct of their efforts.

These demonstration projects collectively address (1) team approaches to work planning, (2) risk/complexity-based approaches to work planning, (3) integration of craft and safety and health disciplines into work planning, (4) application of enhanced job hazard analysis processes, and (5) other concepts that address both work planning effectiveness and worker protection. A specific component addressing medical qualification/surveillance is also being demonstrated.

WHC is currently reengineering its work control and work planning processes at various facilities and for various organizations. Reengineering and Enhanced Work Planning initiatives share many common principles, so where applicable, these efforts have been coordinated and combined to optimize effectiveness.

The development of the automated job hazard analysis system that is being implemented through the reengineering efforts is an example of this coordinated approach. The first phase of Enhanced Work Planning developed and tested an enhanced job hazard analysis system. Enhanced Work Planning team members then assisted reengineering team members in further developing the job hazard analysis system to its current automated form. The result has been fundamental to both work planning and hazard identification. This automated job hazard analysis continues to be refined through the reengineering/enhanced work planning activities at PUREX and West Tank Farms.

PUREX implemented its reengineered process in January. Enhanced Work Planning has been coordinated with the reengineered process, which emphasizes (1) use of work teams for the planning and conduct of work, (2) use of risk/complexity-based (graded) approaches, and (3) integration of enhanced, automated job hazard analysis as part of work planning. As part of the Enhanced Work Planning Demonstration Project, EH Mentors are supporting PUREX work teams in strengthening work control and worker protection. The PUREX initiative has shown quantifiable positive results: (1) some work teams have reduced the life cycle of corrective maintenance packages from 133 to as little as 3 days; (2) work requiring the most complicated planning has been reduced from 70 percent of packages to 5 percent, by allowing planning rigor to match the risk and complexity of the work; (3) safety performance statistics for the first quarter of 1996 are comparable to the first quarter of 1995, indicating that work planning efficiencies are not compromising safety; and (4) a recent employee survey indicates solid support for the reengineered process regarding worker attitude toward performing work, effectiveness of the hazard identification process, and overall safety.

In addition, a job hazard analysis improvement team has been formed at PUREX. Supported by EH Mentors, this team is working to continue the job hazard analysis evolution to optimize user-friendliness and effectiveness. The team is working to optimize the guidance provided to work teams on what is required to deal effectively with various identified hazards.

K Basins also implemented a redesigned work control and work planning process. This process categorizes work activities into three types: routine, skill-of-craft, and planned work. The rigor of work planning is graded to match the category of work activity, with planned work requiring the most rigor and routine work the least. Standard job hazard analyses are completed for the routine and skill-of-craft work, whereas for planned work, a task-specific job hazard analysis is completed for each work package. The redesigned work control and work planning process has significantly increased efficiency while maintaining the proper degree of control. By clearly defining work that fits into each category (particularly the skill-of-craft category), K Basins is achieving consistency, efficiency, and safety in its work planning approaches. Preliminary results from implementing this process show that (1) the chronological time to plan and conduct an average corrective maintenance job has been reduced by 62.5 percent; (2) labor hours required for planning have been reduced by 43.4 percent; and (3) employees feel that they are working at least as safe as or safer than under the previous system.

West Tank Farms is also reengineering its work control and work planning process by taking an approach similar to PUREX's: assembling work planning teams, integrating automated job hazard analysis into work planning, and applying risk/complexity-based approaches. West Tank Farms is completing its design phase and should be implementing the new process in April. EH Mentors will help coordinate the Enhanced Work Planning Demonstration Project with the reengineering effort, focusing on integration of the safety and health disciplines into the reengineered work planning process. EH Mentors will also help further tailor the automated job hazard analysis process to fit West Tank Farm activities.

East Tank Farms is focusing its Enhanced Work Planning Demonstration on the planning and conduct of pit work. East Tank Farms assembled a multidisciplinary team and held a 2-day session, facilitated and supported by EH Mentors, to identify opportunities to enhance the work planning process. During this session, the East Tank Farm Team developed a conceptual framework for redesigning the work planning process. On approval, this redesigned process will be implemented on a pilot basis as part of the enhanced work planning demonstration.

The medical surveillance component of Hanford's enhanced work planning demonstration will develop a process to enroll employees in the proper regimen of medical qualification/surveillance based on job requirements, hazards, exposures, and risks. This component will initially be demonstrated at K Basins. The Enhanced Work Planning Core Team has formed a committee to prepare for and conduct the medical surveillance demonstration. The first step involved developing an employee job task analysis tool to identify requirements, hazards, and exposures for each employee relative to his or her current job. This tool is being automated along with its instructions. In April, the tool will be used to perform an employee job task analysis for all K Basins employees. Supervisors and industrial hygienists will conduct the employee job task analysis for the employees. Core Team members and EH Mentors will assist in this process. The information gained from the employee job task analysis will provide the basis for determining proper medical enrollment. This information will be validated by employee review and qualitative hazard evaluations of the facilities and activities.

In addition to the Enhanced Work Planning medical component, other aspects of a comprehensive health risk surveillance program are being addressed at Hanford. These include such items as (1) optimizing medical qualification/surveillance protocols relative to employee job task analysis information; (2) identifying health effects that may indicate workplace health hazards; (3) creating feedback mechanisms and communication linkages between the medical provider, employer, and employees; and (d) establishing data management systems for medical records and industrial hygiene exposure databases.

Over the next quarter (April through June), the Enhanced Work Planning Demonstration Projects at the four facilities as well as the medical qualification/surveillance aspect will be completed in the field and a report drafted. Various approaches to work planning will be compared and evaluated versus performance indicators. ♦

## IDAHO

EH Mentors are supporting the Enhanced Work Planning Demonstration Project being completed by the DOE Idaho Operations Office (ID) and the management and operating contractor at the Idaho National Engineering Laboratory, Lockheed-Martin Idaho Technology (LMIT). The focus of the project is to establish and implement a pilot process for enhanced work planning and control. This demonstration project builds on the strength and successes of current work planning and control systems, adding enhancements to streamline the overall process. The enhanced work planning and control system will help DOE avoid significant costs and improve worker productivity.

The LMIT Nuclear Operations and High-Level Waste organizations completed a review of their operating practices at the Idaho Chemical Processing Plant (ICPP) late in 1995. Seven teams at ICPP developed recommendations for process improvements to perform work activities more cost effectively and productively. One of the teams, the ICPP Maintenance and Work Control Improvement Team, reviewed the work control system and recommended changes.

EH Mentors teamed with ID and LMIT in January to review and refine the previous recommendations and develop a strategy for implementing the enhanced work planning and control process. Techniques, lessons learned, and best practices from other DOE facilities were incorporated into the revised process. ID reviewed and agreed with the plans to apply enhanced work planning concepts for improving cost effectiveness while maintaining or improving worker protection and safety performance.

The key principles in implementing the enhanced work planning and control process are that it—

- Restore authority and assign accountability to facility owners for work orders,
- Establish a process that ensures integration of all ICPP work control activities,
- Implement an integrated plant schedule with one manager who has the authority to execute required activities,
- Increase productivity and cost effectiveness, and
- Match the degree of rigor in work planning with risk and job complexity.

Based on the lessons learned from Enhanced Work Planning Demonstration Projects at other DOE sites, this project is also using a multidisciplinary team to develop, apply, and evaluate the effectiveness of enhancements. The implementing team includes former members of the ICPP Maintenance and Work Control Improvement Team, plus additional members from key organizations for refining and implementing the enhanced ICPP work planning and control process. Organizations represented include Maintenance, Plant



Operations, and support organizations (Planning, Scheduling, Engineering, and Environment, Safety and Health). Workers will provide input during the implementation phase.

A recommended implementation plan and schedule has been presented to ICPP management. A key manager to champion the process through successful implementation has been selected. Four team leaders heading up the four major implementation phases will assist the key manager.

EH Mentors are working with the implementing teams to evaluate applicability of the job hazard analysis methodology developed at the Hanford Site to operations at the Idaho site. The implementing team is also developing performance indicators for monitoring the impact of changes in the work planning and control process. ♦

## OAK RIDGE

During this period, the Oak Ridge Enhanced Work Planning Demonstration Project proceeded within the K-25 Lockheed Martin Energy Systems (LMES) Waste Management Division in Oak Ridge. This project provides the opportunity to evaluate the Enhanced Work Planning concept (multidisciplinary teams, worker participation, and health and safety personnel fully integrated into work planning) within an operations organization versus application of the concept to maintenance activities at other sites. The project at K-25 demonstrates that enhanced work planning has a positive effect on work planning throughout the spectrum of DOE activities.

The Enhanced Work Planning Core Team within the K-25 Waste Management Division is implementing the following enhancements:

- Ensuring participation of employees from various levels and disciplines in the work planning process;
- Improving communication and sharing hazard information and monitoring data between Industrial Hygiene and the workers and supervisors, between Industrial Hygiene and the Medical Department, and between the Medical Department and workers;
- Enhancing the evaluation of job hazards during project planning;
- Reducing or streamlining permits, forms, and documents that must be prepared for work packages; and
- Incorporating a Lessons Learned review subsequent to completion of planned projects.

The Enhanced Work Planning process ensures that a Core Team comprising health and safety personnel, work planners, maintenance coordinator, operations management, craft personnel, and craft supervisors review and approve the work package for nonroutine projects. This process review eliminates burdensome requirements for the activities to coordinate the work package independently with numerous groups, including Industrial Hygiene, Industrial Safety, Health Physics, planners, and Fire Protection. Personnel who

are required to review and approve a work package can now address and resolve issues as a team.

The multidisciplinary approach to project planning has greatly improved the evaluation of hazards associated with a project. In addition, conflicting or excessively burdensome requirements are eliminated, and the potential for failing to identify applicable requirements is significantly reduced.

By applying Enhanced Work Planning principles, the Core Team expects to reduce the planning time greatly for nonroutine projects by allowing participants to meet at one time. This approach is expected to lead to a reduction in planning time for nonroutine projects of at least 50 percent. The coordinated team planning approach is also expected to reduce factors that result in project delays in the field such as lack of parts, lack of support resources, or failure to walk down work packages. A 20 percent reduction in project delay costs in the field is expected.

During the past quarter, the Core Team identified a potentially significant improvement in eliminating the overuse of safety work permits for certain projects, which results in burdensome document control requirements, including tracking and disposition of related permits. The Core Team is now pursuing actions to eliminate unnecessary use of permits and other forms used in generating a work package while ensuring that project hazards are fully evaluated, communicated to the worker, and controlled.

The computerized job hazard analysis system, developed with technical assistance from EH team members at Hanford, coupled with the development and implementation of a computerized planning tool, will enhance the work planning process at K-25. Core Team members and Maintenance Division planners will provide input on the development of the computer software. The participation of Core Team members and Maintenance Division planners will lead to a more efficient and user-friendly computerized planning program.

A primary objective during the next phase of the demonstration project (following completion of the current phase in July) will be use of the computerized planning tool and integration of the computerized job hazard analysis system. The benefits of using the computerized planning tool within the framework of Enhanced Work Planning will be demonstrated during the next phase of Enhanced Work Planning within the K-25 Waste Management Division.

- Planning time will be reduced as a result of using the team planning approach.
- Costs associated with project delays will be reduced by at least 20 percent.
- The system will provide a basis for job/project planning training and for hazard awareness training.
- The computerized planning program will be placed on the K-25 network allowing access to the program by personnel of all levels and disciplines.
- The program will improve identification of permits and requirements and eliminate the redundancy in the approximately 40 Health, Safety, and Environmental permits, forms, and documents in use at K-25.

The Core Team selected two pilot projects to evaluate application of Enhanced Work Planning concepts and to quantify benefits from implementing improvements in the planning process. The K-1420-A Sludge Removal Project involves chemical, radiological, criticality, and industrial safety concerns. The K-1202 Storage Tank Valve Replacement Project requires the removal and replacement of a leaking valve and involves chemical, radiological, and industrial safety concerns. The waste storage tanks in both projects have held a variety of waste streams. For both pilot projects, the integrated team planning approach allows the identification of issues and concerns that may otherwise have been overlooked, provides for resolution of issues and concerns, and enhances the team members' awareness of hazards and issues outside their area of expertise. The two pilot projects also provide the opportunity for identifying lessons learned and enhancements that can be made in the overall planning process within the Waste Management Division.

During this past quarter, an Enhanced Work Planning Core Team subcommittee was established to identify the types and frequency of hazard information and data exchanged, as well as any deficiencies requiring improvement. The subcommittee was composed of the EH Mentor, a Medical Department representative, health and safety representatives, and worker representatives. The subcommittee identified potential improvements in the exchange of air sampling results from Industrial Hygiene to the worker and the exchange of health physics data from the Radiological Control organization to the worker.

During the next quarter, the Core Team will develop a procedure describing the project planning process using the team-planning approach, and the computerized planning program will be developed. The procedure will be drafted and revised based on lessons learned from using the computerized planning program in completing the two pilot projects. The development of this procedure will facilitate exporting the Enhanced Work Planning process to other organizations within Oak Ridge and within DOE.

Core Team members recently evaluated the communication of work restrictions to health and safety personnel and to workers and their supervisors. Core Team members are working to improve understanding of how work restrictions are determined and assigned by the medical provider and enhance the process of communicating work restrictions to health and safety personnel. The enhanced communication process should reduce lost-workday cases at K-25 by ensuring that personnel with work restrictions are assigned to nonrestricted activities instead of being sent home because of work restrictions.

In addition to using aspects of the Hanford computerized job hazard analysis system in developing a computerized planning tool at K-25, the Core Team continues to monitor activities at other sites for potential integration into activities at K-25. Efforts at the Idaho site to develop a guidance document defining requirements for skill-of-the-craft tasks are of particular interest. This guidance document could provide the basis for reducing unnecessary procedure and permit restrictions for tasks performed on the basis of skill-of-the-craft. ♦

## SAVANNAH RIVER

During this quarter, EH initiated a new enhanced work planning demonstration project at the Savannah River Site (SRS) focusing on waste minimization. This initiative is building on site successes in waste minimization using the enhanced work planning process to improve productivity and efficiency while enhancing worker safety and health and reducing the environmental impact of operations at SRS. This project provides an opportunity to apply enhanced work planning concepts (multidisciplinary teams, worker participation, and health and safety personnel fully integrated into work planning) to a project that provides unique benefits and should be readily transferable throughout the DOE complex. Anticipated benefits from this effort include—

- Minimizing wastes, creating significant opportunities to reduce environmental impact of onsite waste burial by reducing the volume of waste generated. Potential cost savings include a reduction of more than 40 percent in waste at the Nuclear Materials Stabilization Program facility alone, with opportunities for disposal cost savings in the range of \$8,000,000.
- Defining clear metrics based on the cost of site burial, safety enhancements from reducing the radiological hazards in the workplace, and productivity improvements from enhancing the planning of decontamination activities.
- Planning and implementing decontamination activities (controlled area rollbacks) in an operating facility contaminated by transuranics that will involve unique challenges and opportunities to implement and document good practices that can be exported to other SRS facilities, as well as throughout the DOE complex.

During the past quarter, an Enhanced Work Planning Core Team was established and a technical assistance plan was drafted. Although the formal Enhanced Work Planning Core Team was established only recently, significant progress has already been made by building on ongoing SRS efforts in baselining waste minimization practices and establishing targets for improvement. The Enhanced Work Planning Core Team is using the existing waste minimization steering committee to approve and facilitate implementation of Core Team recommendations. The steering committee is an active group that includes high-level representatives from facility management.

The Core Team initiated the first pilot project, a controlled area rollback plan, at the H-Canyon facility. The Controlled Area Rollback Project involves planning and interface with crafts, facility operations, maintenance, site and facility Radiological Controls, Industrial Hygiene, and subcontractors. The work is performed in radiologically controlled areas with sometimes conflicting priorities between facility operations and rollback priorities. This environment provides an ideal environment for testing enhanced work planning concepts.

The Core Team selected H-Canyon as a pilot project. H-Canyon's isotopic makeup and distribution make it one of the most difficult, time-consuming, and costly facilities to roll back. Success here should provide a source of good practices and techniques that can

be exported to other facilities. In addition, H-Canyon currently generates approximately 25 percent of the low-level waste from the Nuclear Materials Stabilization Program, which in turn is the largest generator of low-level waste onsite. The rollback project should have a dramatic impact on decreasing low-level waste production.

A number of benefits should result from the rollback pilot project. If contaminated areas are rolled back, worker health and safety will be enhanced by reducing the work hazards and exposure pathways. Increased worker productivity and higher safety margins will result from reducing the amount or use of additional protective clothing and respiratory protection equipment. A significant reduction of waste disposal volume will dramatically reduce disposal costs and the overall environmental impact of operations at SRS.

Rollback work at H-Canyon has commenced with Enhanced Work Planning baselining of activities. To date, more than 42,000 square feet of areas characterized as Contaminated Areas or High Contaminated Areas have been scheduled to be surveyed, decontaminated, and downgraded to Radiological Buffer Areas. This change will greatly enhance control of contamination at the source as well as minimize waste production.

Preliminary work planning issues resulting from the rollback baselining include developing a rollback plan and logic flowchart to define the work planning process, prioritize the rollback work, and define the planning interfaces. The rollback plan will be developed as a “handbook.” Some improvement opportunities that are apparent through baselining the existing rollback work should be resolved by developing and implementing the rollback plan and schedule. Expected improvements include—

- Eliminating recurrent area contamination by identifying and fixing or containing flange, valve, and component leaks.
- Controlling sumps, overflows, and spills through Enhanced Work Planning with operations and implementing engineering controls.
- Integrating subcontractor activities into the rollback planning process to support key rollback priorities.
- Enhancing facility Radiological Controls organization planning interface to coordinate surveying activities with the needs of the rollback team.

Preliminary performance measures for the rollback pilot project were established to measure square feet of facility decontaminated and rolled back versus cubic feet of low-level waste disposed of as “Green is Clean” (uncontrolled) waste, and waste reduction in cubic feet versus cost savings for disposal.

In addition to work planning enhancements, the Enhanced Work Planning Core Team is evaluating technological improvements, such as zero volume absorbents and “walk behind” radiation detectors, to facilitate decontamination activities to improve surveying and characterization efficiency. EH Mentors are also evaluating other changes in

practices that could increase productivity, reduce wastes, and improve the work environment. Recommendations regarding enhanced stepoff-pad practices and changing from supplied-air hoods to supplied-air respirators are being evaluated to determine cost savings from waste reduction versus worker comfort and safety implications. ♦